

## Manuscript Details

Manuscript number	<i>SURVOPH_2017_56</i>
Title	<i>Reply to Lee et al – Viral Posterior uveitis,</i>
Article type	<i>Correspondence</i>
Keywords	<i>Ebola Uveitis; Sierra Leone</i>
Manuscript category	<i>Major Review</i>
Corresponding Author	<i>Paul Steptoe</i>
Corresponding Author's Institution	<i>University of Liverpool</i>
Order of Authors	<i>Paul Steptoe, Janet Scott, Malcolm Semple</i>
Opposed reviewers	<i>Jessica Shantha, Steven Yeh</i>

## Submission Files Included in this PDF

File Name [File Type]

*Lee et al Reply, Cover Letter.docx [Cover Letter]*

*Reply to Lee et al – Viral Posterior uveitis submitted.docx [Manuscript]*

*To view all the submission files, including those not included in the PDF, click on the manuscript title on your EVISE Homepage, then click 'Download zip file'.*

## Corresponding author contact information

Dr Paul Steptoe

Affiliation: Institute of Translational Medicine, University of Liverpool

Address: Institute of Child Health in the Park, Alder Hey Hospital, Eaton Road, Liverpool, L12 2AP

Tel +44 (0) 7969237935

Email address: [paul.steptoe@liverpool.ac.uk](mailto:paul.steptoe@liverpool.ac.uk)

## Co Authors

Dr Janet Scott

Affiliation: Institute of Translational Medicine, University of Liverpool

Address: Institute of Translational Medicine, University of Liverpool, Crown street, Liverpool, Merseyside, L69 3BX

Email address: [Janet.Scott@liverpool.ac.uk](mailto:Janet.Scott@liverpool.ac.uk)

Dr Malcolm Semple

Affiliation: Institute of Translational Medicine, University of Liverpool

Address: Institute of Child Health in the Park, Alder Hey Hospital, Eaton Road, Liverpool, L12 2AP

Email address: [m.g.semple@liverpool.ac.uk](mailto:m.g.semple@liverpool.ac.uk)

Dear Author,

Ebola retinal lesions in this review are described as 'multiple, peripheral, chorioretinal scars with hypopigmented halos'. This description, from Varkey et al<sup>5</sup> was a single case report. In our recent case-control study, 'A Novel Retinal Finding in Ebola Survivors, Sierra Leone 2016'<sup>4</sup> we were unable to find any retinal lesions of this description and appearance in 82 Ebola survivors and only one example in 105 controls using ultra-wide field retinal imaging.

We did report a novel retinal lesion which appears specific to Ebola in 14.6% of survivors. It appears to have a peripapillary and/or isolated multifocal distribution following the anatomical pathway of the retinal ganglion cell axons implying a neuronal transmission to the retina. The lesions appear light grey in colour, of variable size, with surrounding retinal darkening in many cases. Their shape is variable but the presence of linear margins with sharp angulations in keeping with the photoreceptor triangular mosaic arrangement appears specific. OCT analysis demonstrates these lesions are limited to the retinal layers with no choroidal involvement. In all cases, we found they spare the fovea and therefore are not directly responsible for visual acuity deficits in the absence of intraocular inflammation.

As posterior uveitis secondary to Ebola has previously been based on case series,<sup>1,3</sup> many retinal lesions seen in survivors may have falsely been attributed to Ebola when in fact they

are common in the local West African population. Treatment for Ebola retinal lesions alone with periocular or systemic steroids may not be indicated or efficacious given the good visual outcome of Ebola survivors with multiple retinal lesions in the absence of cataract formation and may be detrimental in cases of inadvertent toxoplasmosis misdiagnosis which is a far more common cause of retinitis in West Africa<sup>2</sup>.

In the final paragraph, it is stated one of the complications of posterior uveitis is recurrence of anterior uveitis. PCR confirmed anterior uveitis secondary to Ebola virus can occur in the convalescent period<sup>6</sup> but although reoccurrences have been reported up to 13 months by Hereth Hébert et al<sup>1</sup>, no aqueous humour PCR analysis was conducted to enable confirmation. As only one of the nine figures in this publication were consistent with our description of Ebola retinal lesions, an alternative aetiology for the uveitis reoccurrence is more likely.

Word count 378

## Disclosures

Potential conflicts of interest: P.J.S. reports a related grant from Bayer for the research referred to in this reply. M.G.S. and J.T.S reports related grants and support from the Wellcome Trust and the Bill and Melinda Gates Foundation outside of the submitted work.

## References

1. Hereth He'bert E, Oury Bah M, E'tard JF, et al. Ocular complications in survivors of the Ebola outbreak in Guinea. *Am J Ophthalmol*. December 2016. doi:10.1016/j.ajo.2016.12.005.
2. Ronday MJ, Stilma JS, Barbe RF, et al. Aetiology of uveitis in Sierra Leone, west Africa. *Br J Ophthalmol*. 1996;80(11):956-961. doi:http://dx.doi.org/10.1136/bjo.80.11.956.
3. Shantha JG, Crozier I, Hayek BR, et al. Ophthalmic Manifestations and Causes of Vision Impairment in Ebola Virus Disease Survivors in Monrovia, Liberia. *Ophthalmology*. November 2016. doi:10.1016/j.ophtha.2016.10.011.
4. Shantha JG, Crozier I, Varkey JB, et al. Long-term Management of Panuveitis and Iris Heterochromia in an Ebola Survivor. *Ophthalmology*. September 2016. doi:10.1016/j.ophtha.2016.07.013.
5. Steptoe PJ, Scott JT, Baxter JM, et al. Novel retinal lesion in Ebola survivors, Sierra Leone, 2016. *Emerg Infect Dis*. 2017;In Press. doi:https://dx.doi.org/10.3201/eid2307.161608.
6. Varkey JB, Shantha JG, Crozier I, et al. Persistence of Ebola Virus in Ocular Fluid during Convalescence. *N Engl J Med*. 2015;372(25):2423-2427. doi:10.1056/NEJMoa1500306.